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The Symptoms and Pathological Changes in the Upper Air Passages in Influenza.

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THE SYMPTOMS AND PATHOLOGICAL CHANGES IN THE UPPER AIR PASSAGES IN INFLUENZA.*

By J. SOLIS-COHEN, M. D.

In presenting a summary of the symptoms and pathological changes in the upper air passages in influenza, let me at once refer to the remarkable paper presented to us in 1889 by our present president, in which he seemed to have recognized a precursor of the recent pandemic in a series of cases which had come under his observation for the previous three or four years. If we carefully peruse this paper and compare it with half a hundred or more of the reports of ordinary and exceptional lesions which have been noted during the pandemic of 1889–'90 in the most diverse portions of the globe, we can not fail to be impressed with the accuracy displayed in Dr. Glasgow's observations. A few such confirmative records will be referred to in foot notes when these remarks are printed.

To confine the subject to the limits assigned for the present discussion, we find from various sources records of a mucoid or, as I would call it, a lymphoid œdema of the palate and pharynx, of the intranasal structures, of the epiglottis, and of the larynx, top and interior. We find rec-

* Read before the American Laryngological Association at its thirteenth annual congress.

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ords of patches of exudation on the tonsils and on other portions of the throat, much resembling the patches of diphtheria; we find records of œdema of the glottis and death therefrom, analogous to Dr. Glasgow's cases of œdema of the vocal bands, and of sudden death from spasm of the glottis or from sudden laryngeal stenosis.*

We find records of purpura spots on the mucous membrane of the structures already named, and even in the trachea, with recurrent hæmorrhage therefrom; † and we find records of mycosis of the tonsils.

There are a few additional manifestations in our immediate domain which have doubtless been observed by Dr. Glasgow during the late prevalence of influenza. These are, as extensions from the nasal passages, inflammation and suppuration in the frontal and maxillary sinuses, in the ethmoidal cells, cerebral abscess, inflammation of the Eustachian tube leading to otitis media, and other lesions of the auditory apparatus; as extensions of the laryngitis, hæmorrhage ‡ and abscess; # and as sequelæ, paralysis of the palate ‖ and paralysis of the larynx.△

I should likewise call attention to a paper by another fellow of our association, Dr. Seiler, read in the same year before the Laryngological Section of the American Medical Association, in which he presents a summary of some five hundred personal observations of cases similar in character to those described by Dr. Glasgow and with which he had been familiar for about the same period.

Although the ætiology of influenza is not included in

* De Lostalot. *France méd.*, March 28, 1890. Bavachi. *Gaz. méd. d'Orient.*, April 15, 1891.

† Caverhill, Semon. *Edinb. Med. Jour.*, August, 1890.

‡ Marano. *Arch. ital. di lar.*, May, 1890.

Schäffer. *Deut. med. Woch.*, No. 10, 1890.

‖ Heymann. *Deut. med. Ztg.*, March 1, 1890.

△ Krakauer. *Deut. med. Ztg.*, March 17, 1890.

the subject of the present discussion, it may be permitted here to remark that the various local but extensively separated telluric disturbances of several kinds that have taken place in the United States within the period comprised in the clinical observations of Dr. Glasgow and Dr. Seiler, and of a few others of like character, link their cases to those which have recently occurred pandemically throughout the globe, and which have not altogether ceased to appear endemically, and that they thus justify the surmise of Dr. Glasgow that the epidemic described by him was to be regarded as *influenza*—a surmise, under the circumstances, of most discriminative acumen.

The symptoms of influenza as manifested in the upper respiratory tract are not at all characteristic, and are recognizable as due to that disease only from their endemic character and the peculiar prostration of the nervous system which attends them, and which in its turn is characterized by suddenness of onset and by great debility of the circulatory system.

These symptoms comprise sternutation, coryza, parosmia, nasal dyspnœa, epistaxis, sore throat, dysphagia, impaired articulation, cough, expectoration sometimes hæmorrhagic, dysphonia, aphonia, laryngeal dyspnœa, spasm of the larynx.

The lesions, mainly catarrhal, giving rise to more or less of these symptoms are not universal. They exist probably in about one fourth of the cases, the remainder presenting the nervous, pulmonary, and gastro-intestinal disorders without catarrhal complication.

The pathological lesions observed in the upper respiratory apparatus comprise catarrhal, hæmorrhagic, and purulent rhinitis; inflammation and suppuration of the ethmoidal, frontal, and maxillary sinuses; acute phlegmonous and œdematoid sore throat; simple acute pharyngitis and

œdematoid pharyngitis, general amygdalitis, and lacunal amygdalitis; inflammation and tumefaction of the lymphoid nodules at the vault of the pharynx and in the base of the tongue; pseudo-membranous exudation of the tonsils, palate, pharynx, tongue, and larynx; superficial, œdematous, hæmorrhagic, fibrinous, subglottic, purulent, and ulcerative laryngitis; abscess of the larynx; simple and hæmorrhagic tracheitis—all this but an exemplification of the general Protean characters of influenza in general.

To these must be added submaxillary and cervical infiltration of the connective tissue with lymph, simulating the more serious lesion known as Louis's or Ludwig's angina, and sometimes compressing the larynx. On incision into this tumid mass there is no evacuation of pus either immediately or a day or two after, but only blood and serum or a serolymph exude, as occurred in a few cases I have seen in consultation during the pandemic.

These lesions occur but in a small proportion of the catarrhal cases.

It is to be hoped that some member of the profession with sufficient leisure will study the records of these manifestations with a view of learning their proportionate frequency.

The congestion of the mucous membrane is passive rather than active, due to venous stasis rather than arterial congestion. The color is a violet-red rather than a carmine. The membrane looks sodden, tumid, and pasty from lymph stasis, and from exudations of lymph on the surface. Ecchymoses take place in irregular numbers and distribution, and hæmorrhages, for the most part slight, in a certain proportion. In the œdematoid cases muco-lymph, rather than sero-mucus, is discharged from incised wounds, and the release of serum, as in ordinary œdema from venous stasis, is seen but exceptionally.

At a later date fibrinous accumulations are noted at various points upon the mucous membrane. In some cases there is profuse glandular secretion, and in some laryngeal cases the secretion may be seen exuding from the ducts of the glands.*

The morbid process may proceed to suppuration and ulceration, while in some cases abscesses are formed. These manifestations do not subside with the actual attack of influenza, but often continue for a number of weeks after cessation of all characteristic constitutional symptoms.

In some cases of laryngeal complication, paresis of the laryngeal muscles takes place, chiefly in the domain of the constrictors, and occasionally in the form of paralysis of the recurrent.†

Paralysis of the palate and other paralyses sometimes occur in the domain of the upper respiratory organs which bear considerable resemblance to the paralysis occurring in diphtheria.

I have seen a number of examples of the tumid, puffy, pasty condition of the mucous membrane of more or less of the mouth, palate, and pharynx, so well described by Glasgow, much resembling ordinary œdema on first inspection, but not fluctuating or pitting under pressure. The tumefaction is often so great as to impair articulation, respiration, and glutition. The rhinopharynx, the interior of the nose, the epiglottis, the borders and the interior of the larynx, may be similarly affected. At the same time, in some instances, there is an analogous tumefaction of the subcutaneous tissues under the lower jaw and in front of the neck, similar in appearance to that of diffuse cellular infiltration, widely known as Louis's or as Ludwig's angina, and giving rise to dyspnœa by compression.

* B. Fränkel. *Deut. med. Woch.*, No. 28, 1890.

† Krakauer. *Loc. cit.*

Incision into the tumid portions of mucous membrane show that the infiltration is not serous but seems lymphous, and the viscid liquid will exude in long strands. During paroxysms of gagging after incision I have seen thick strands reach from the mouth of the seated patient to the spittoon on the floor in unbroken streams. In other cases there is nothing but venous hæmorrhage from the incision, but considerable mucoid or lymphoid material will be expectorated later.

Before the œdematoid condition is reached, the lymph will have made its appearance on the surface of the mucous membranes, whence it is expectorated in thinner viscid strands. The known connection of the lymphoid spaces of the nasal mucous membrane with the subarachnoid and subdural spaces affords a clew for accounting for some of the terrible meningeal and cerebral complications, if we admit that the disease is one affecting the lymphatic circulation as well as the sanguinous circulation. It is probable that both are impaired by paretic conditions of the vasomotor system as a direct consequence of the poison of influenza, just as its poisonous influence upon the pneumogastric nerve has long been held to account for the frequent pneumonic congestion and the cardiac debility. The tumefaction of various lymphatic glands and of the spleen noted in many cases still further indicates the lymphatic apparatus as a chief seat of lesion.

I must therefore regard the immediate anatomico-pathological lesion of influenza, as manifested in the upper respiratory passages, as one involving the lymphatic organs and structures, in consequence of which the lymph accumulates in the connective tissue.

There appears to be a paresis of the nervous system, in partial result of which there is a stasis in the venous and lymphatic circulations. Hence passive sanguineous con-

gestions, ecchymoses, and hæmorrhages from the one, and passive lymphous congestions and lymphous or mucoid exudations from the other. Fibrinous exudation occurs in some instances, and a typhoid grade of inflammation in others, sometimes terminating in suppuration and in discrete or in diffuse abscess.

I have had two most remarkable instances of a happy effect of severe attacks of influenza upon malignant diseases. One was a severe case of epithelioma of the palate in a gentleman more than eighty years of age. The diagnosis had been confirmed by histological investigation. I had destroyed the entire disease upon one side by partial excision and by electrolysis, and it had cicatrized in the most satisfactory manner. The opposite side, which was not near as extensively diseased at first as the other side, resisted the same treatment and also the electric cautery. It had in places succumbed to lactic acid, but, despite all that could be done, the disease had extended to the pharyngo-palatine folds and to the region of the alveoli, when, in January, 1891, the patient was suddenly attacked with the influenza. The brunt of the disease was borne in the epitheliomatous portion of his throat; the entire diseased portion sloughed out, and he convalesced from his influenza and his epithelioma together. A year later he called to pay me a Christmas visit, and he was so stout I did not recognize him until he laughingly recalled himself to me.

The other case was one of tuberculosis of the lungs and the larynx in a lady about fifty years of age. The cough was incessant. Rest at night could be secured but by spells, and that with difficulty. Expectoration was extreme. It was reported to me by her family physician as more than a pint in the twenty-four hours. This lady was attacked with influenza, and that disease cured her tuberculosis. She has not coughed or expectorated for eighteen months,

and is, to all intents and purposes, a healthy, though not a robust, woman.

These cases present some compensation for the much larger class in which the influenza hurries the patient to his doom. They remind me very much of a number of cases which I have observed for many years in hospital practice, in which patients with tuberculosis, with syphilis, and with carcinoma have become cured by the effects of an intercurrent attack of erysipelas. I have been afraid to inoculate similar patients with erysipelas, lest it should get beyond control, for erysipelas of the nose and throat is a very serious disease; but I have again and again called the attention of some of my bacteriological friends to the importance of the subject, and have for years unavailably coaxed some of my surgical friends to have some of their cases of carcinoma of the mamma inoculated with erysipelas, as that disease would be more manageable on the exterior of the body than in its cavities.

I can thus confirm the observations recently recorded from various sources, that infection with erysipelas will sometimes cure tuberculosis and carcinoma.

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